

Patent Application No. 08/000,000

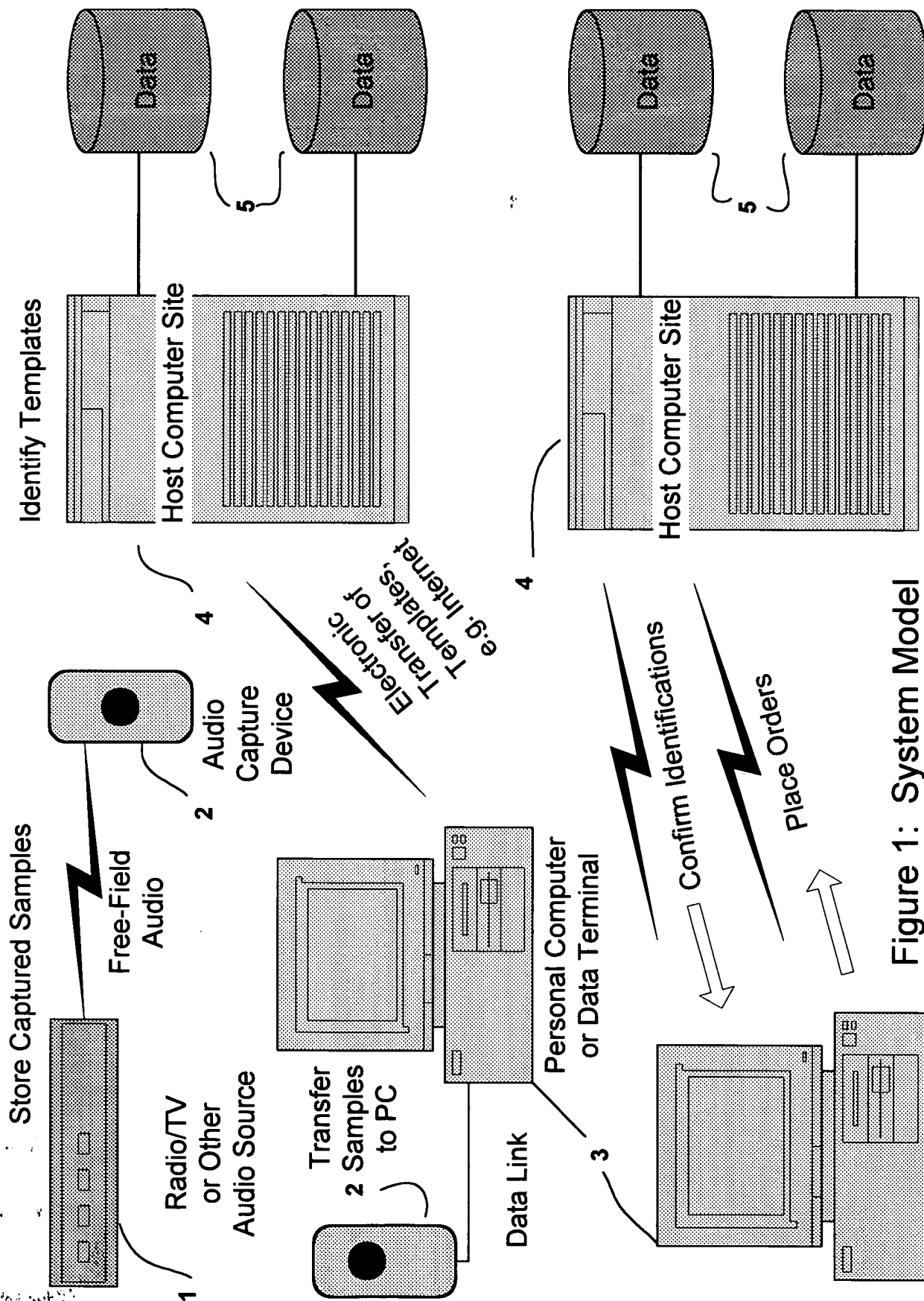


Figure 1: System Model

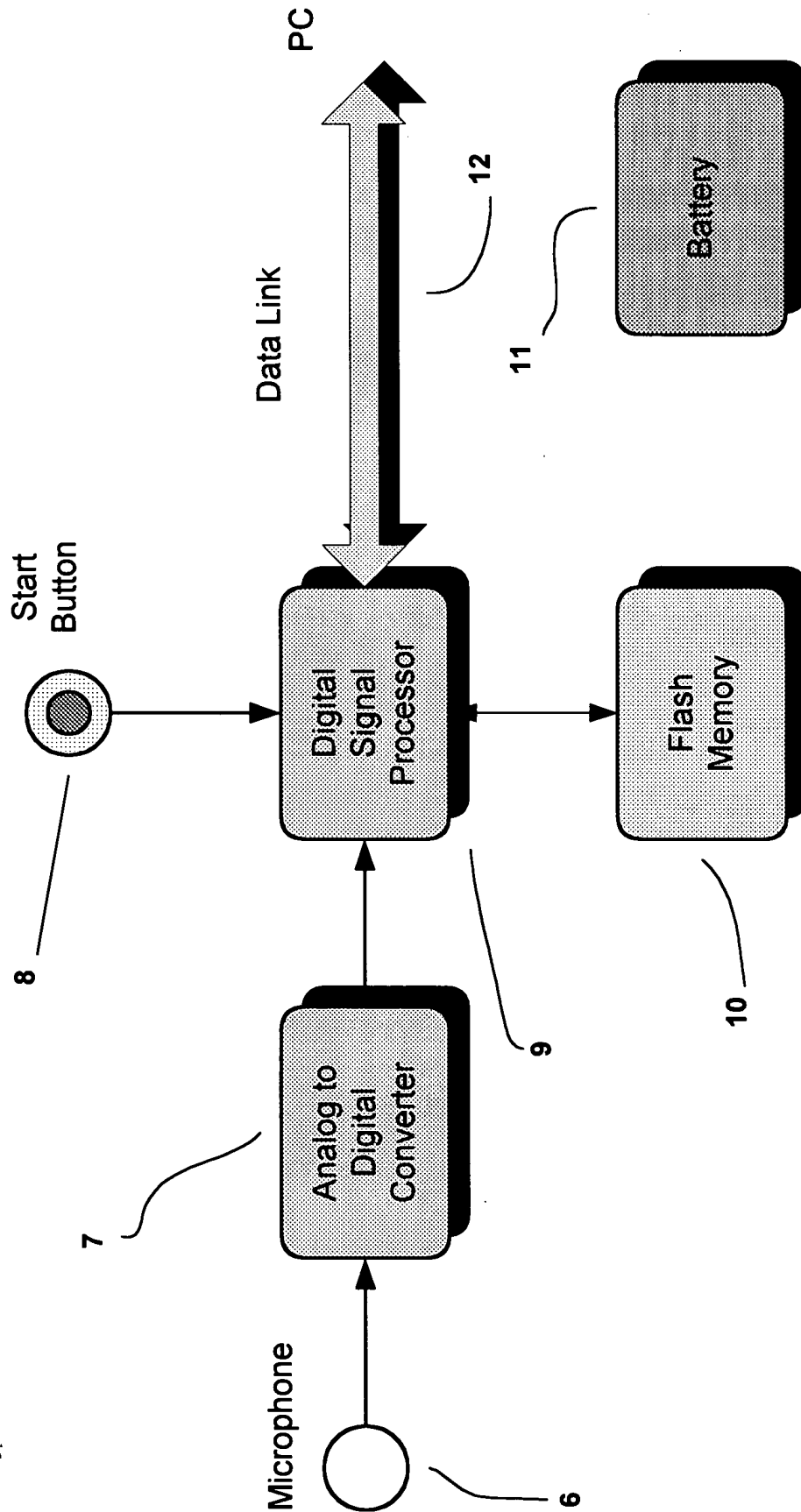


Figure 2: Typical Audio Capture Device

Patented by the U.S. Patent & Trademark Office

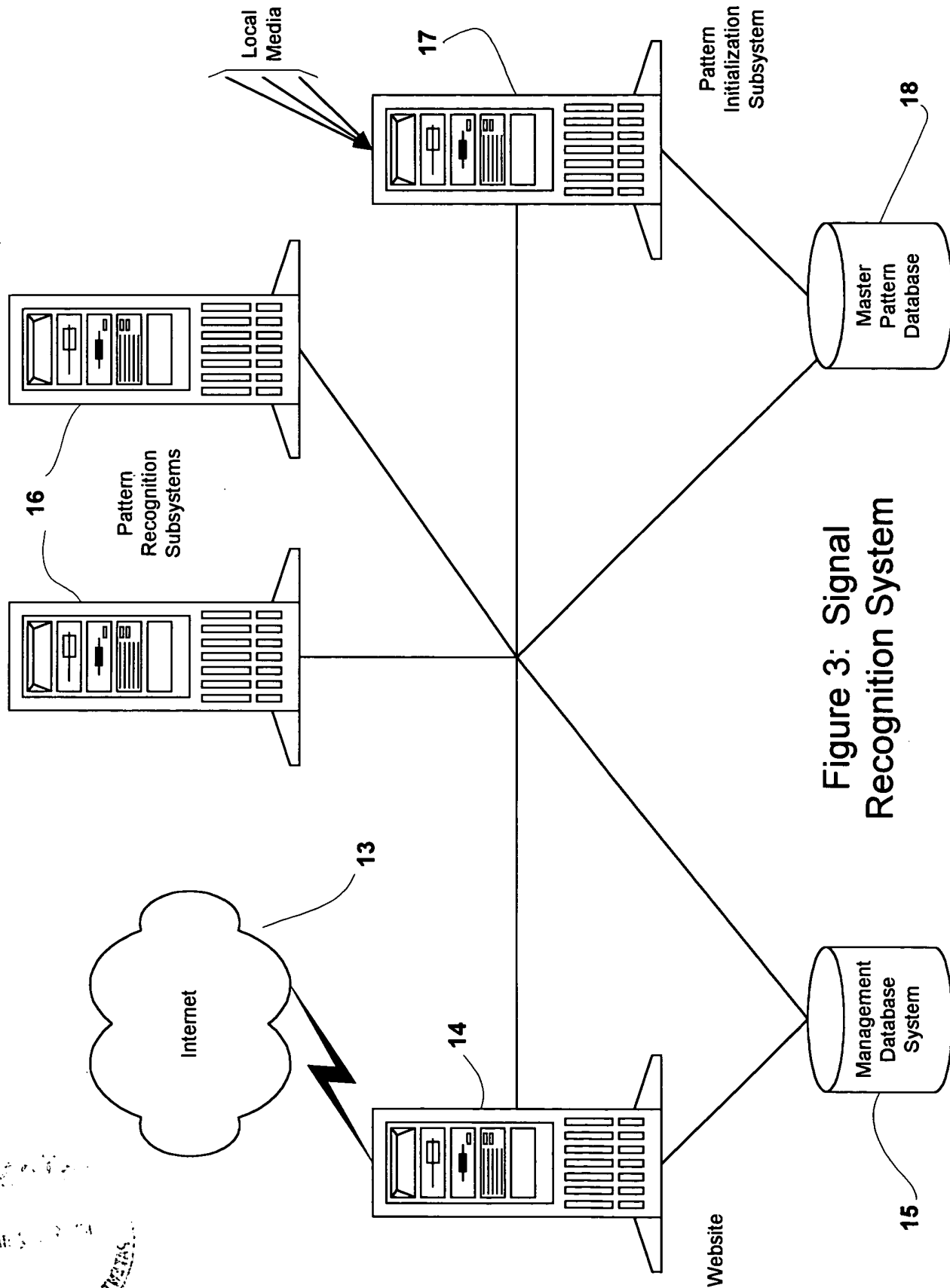
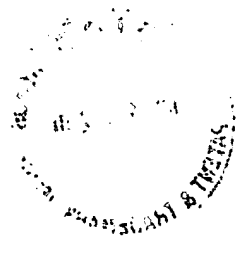


Figure 3: Signal Recognition System

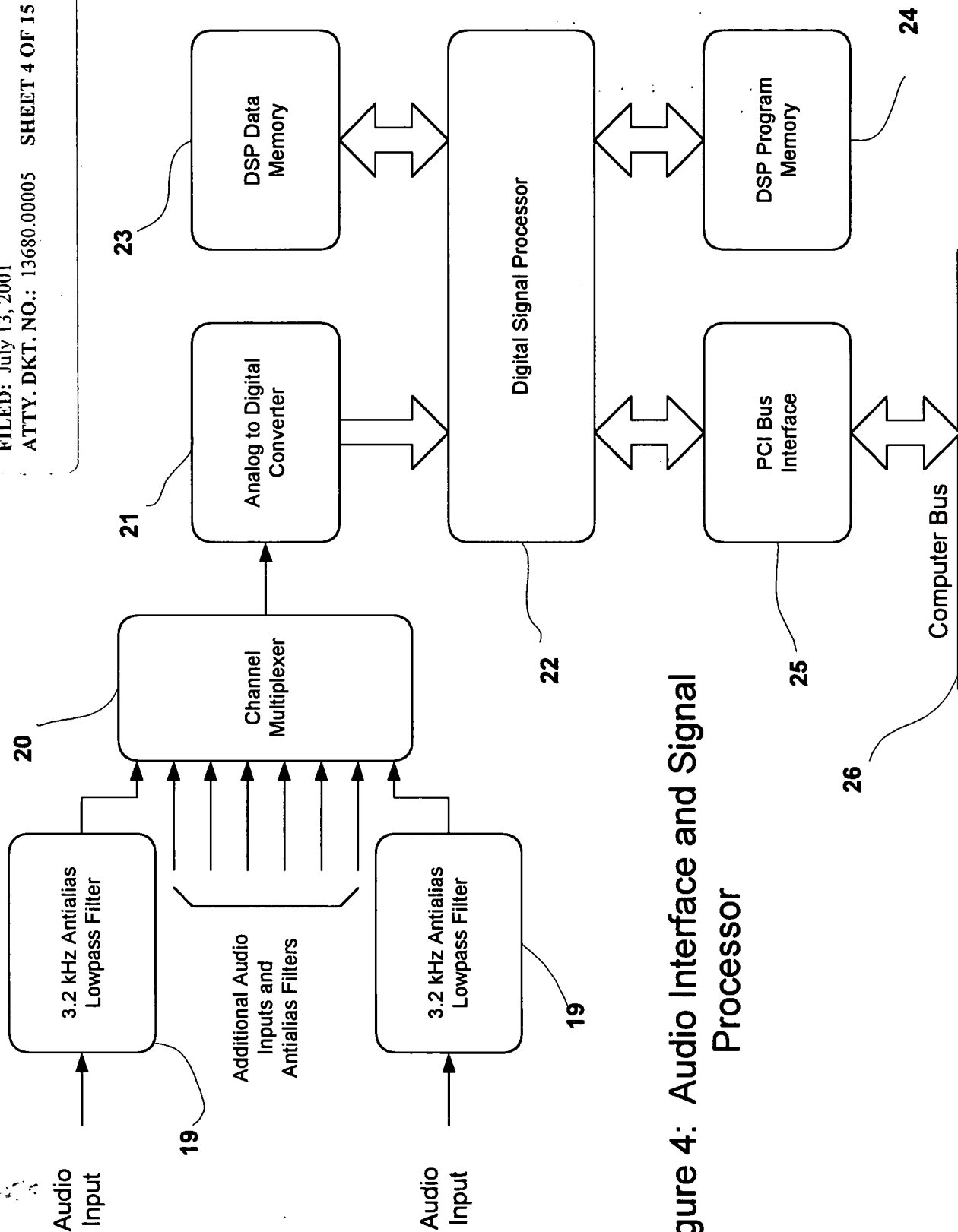


Figure 4: Audio Interface and Signal Processor

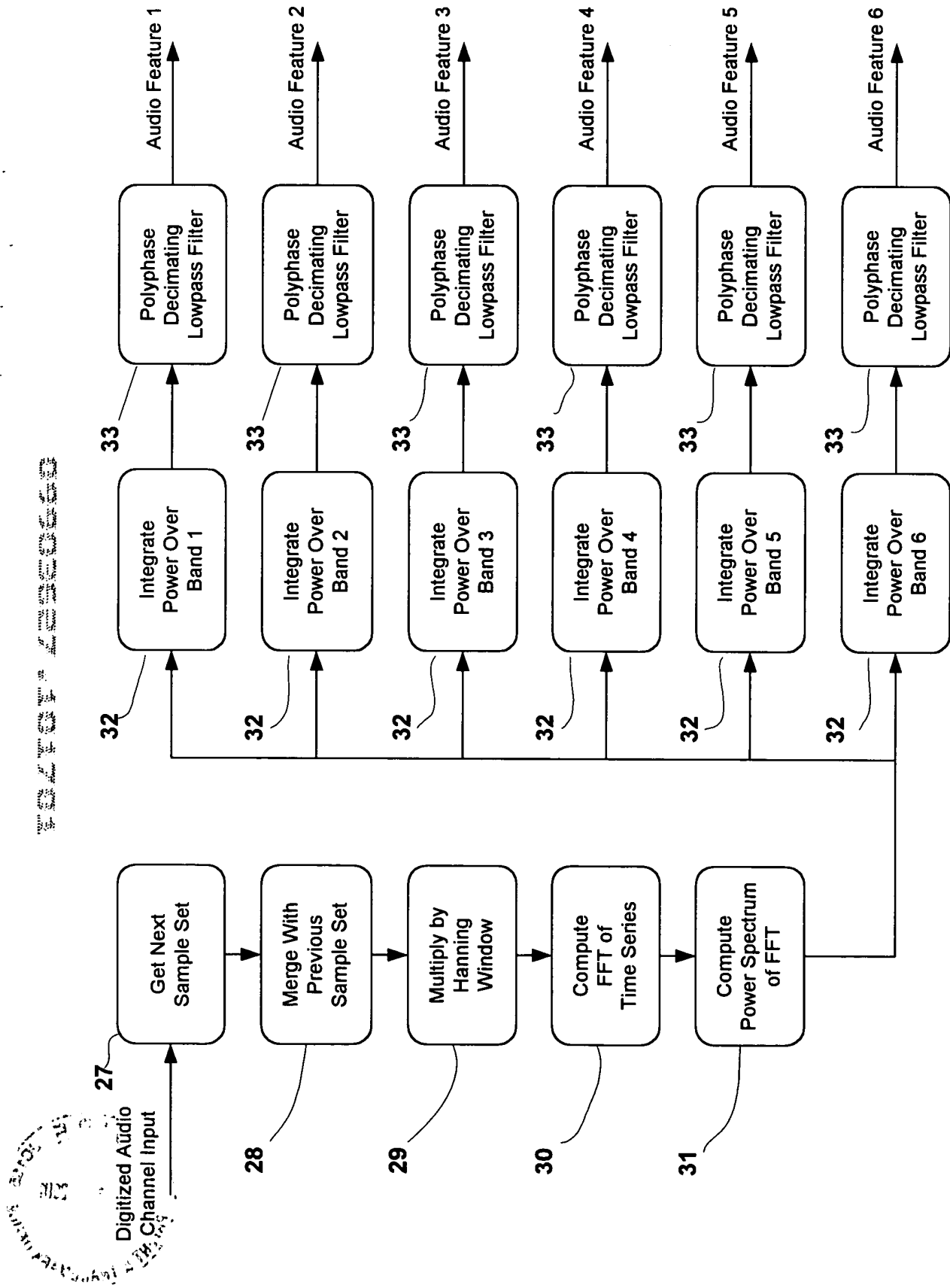


Figure 5: Audio Spectrum Analysis and Feature Extraction

INVENTOR(S): STEPHEN C. KENYON, **AL.**
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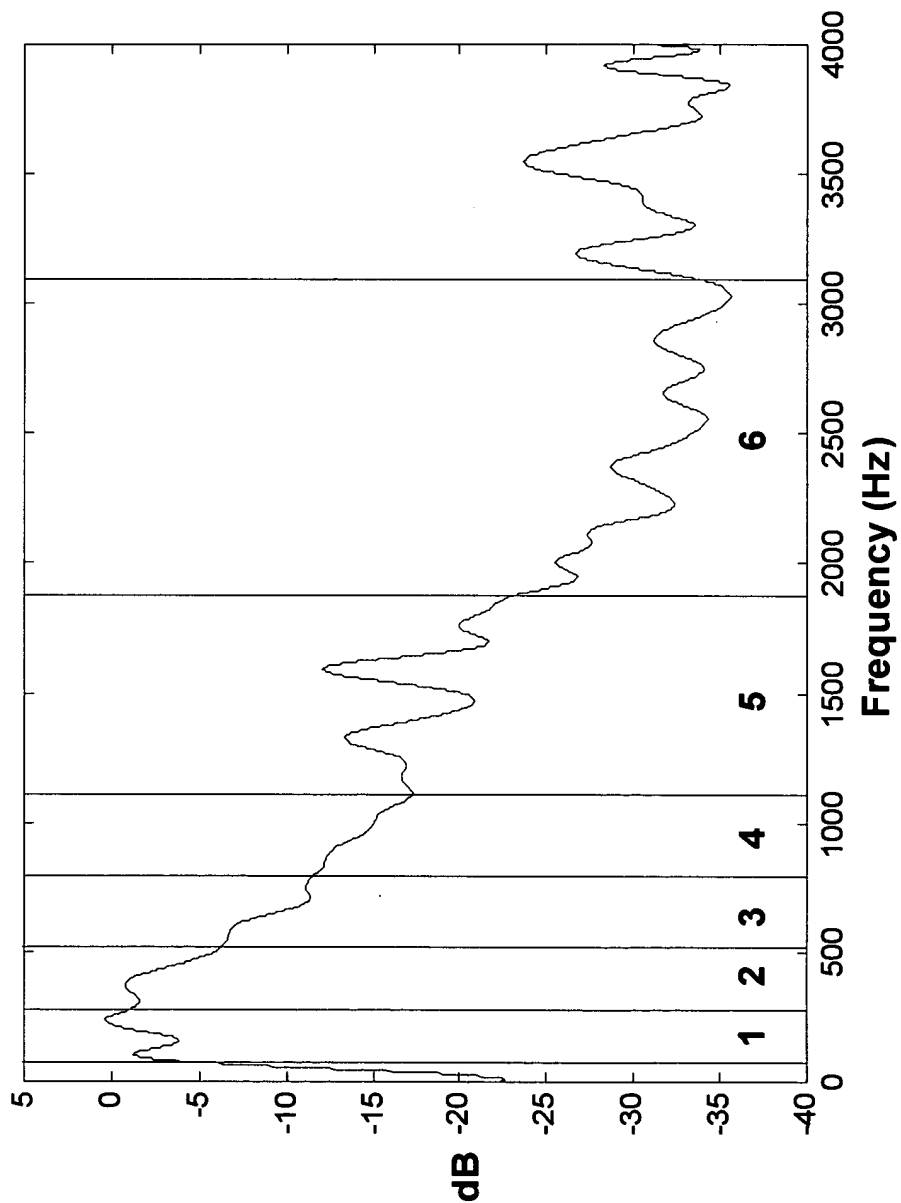


Figure 6: Audio Spectrum Analysis Bands

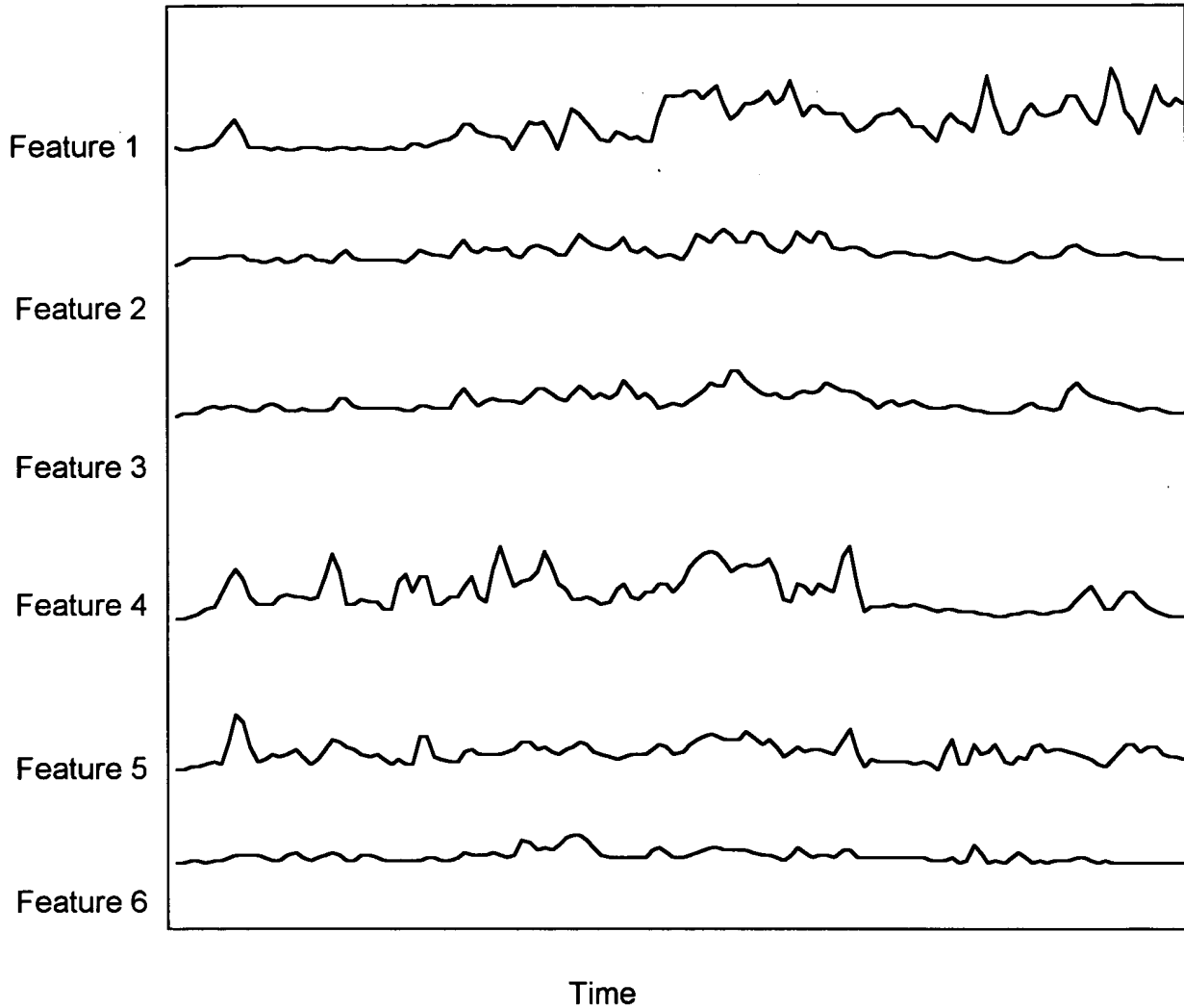
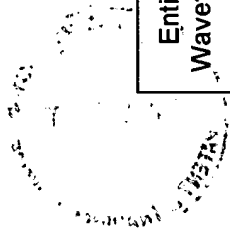


Figure 7: Example Feature Waveforms



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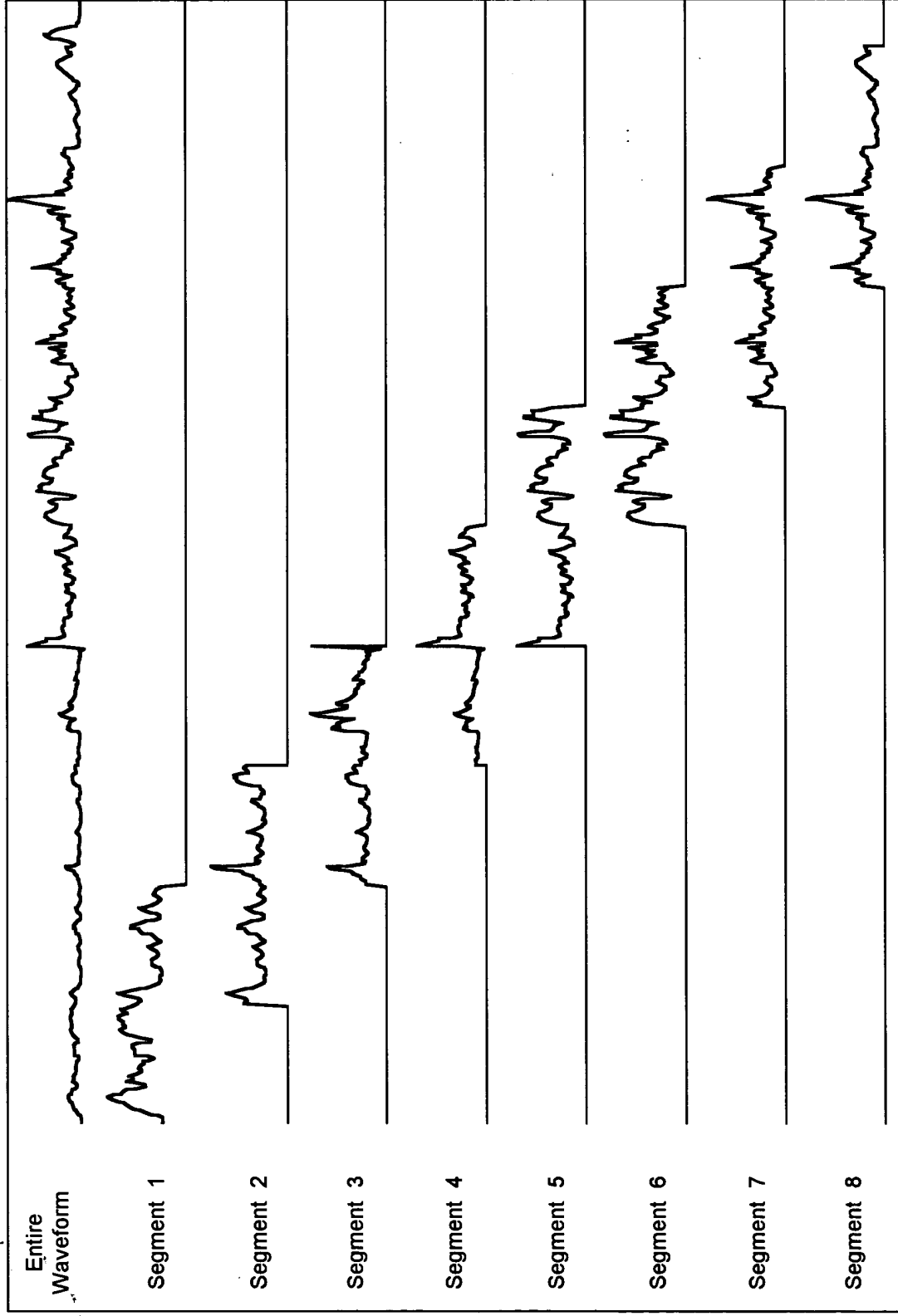


Figure 8: Reference Feature Waveform Segmentation

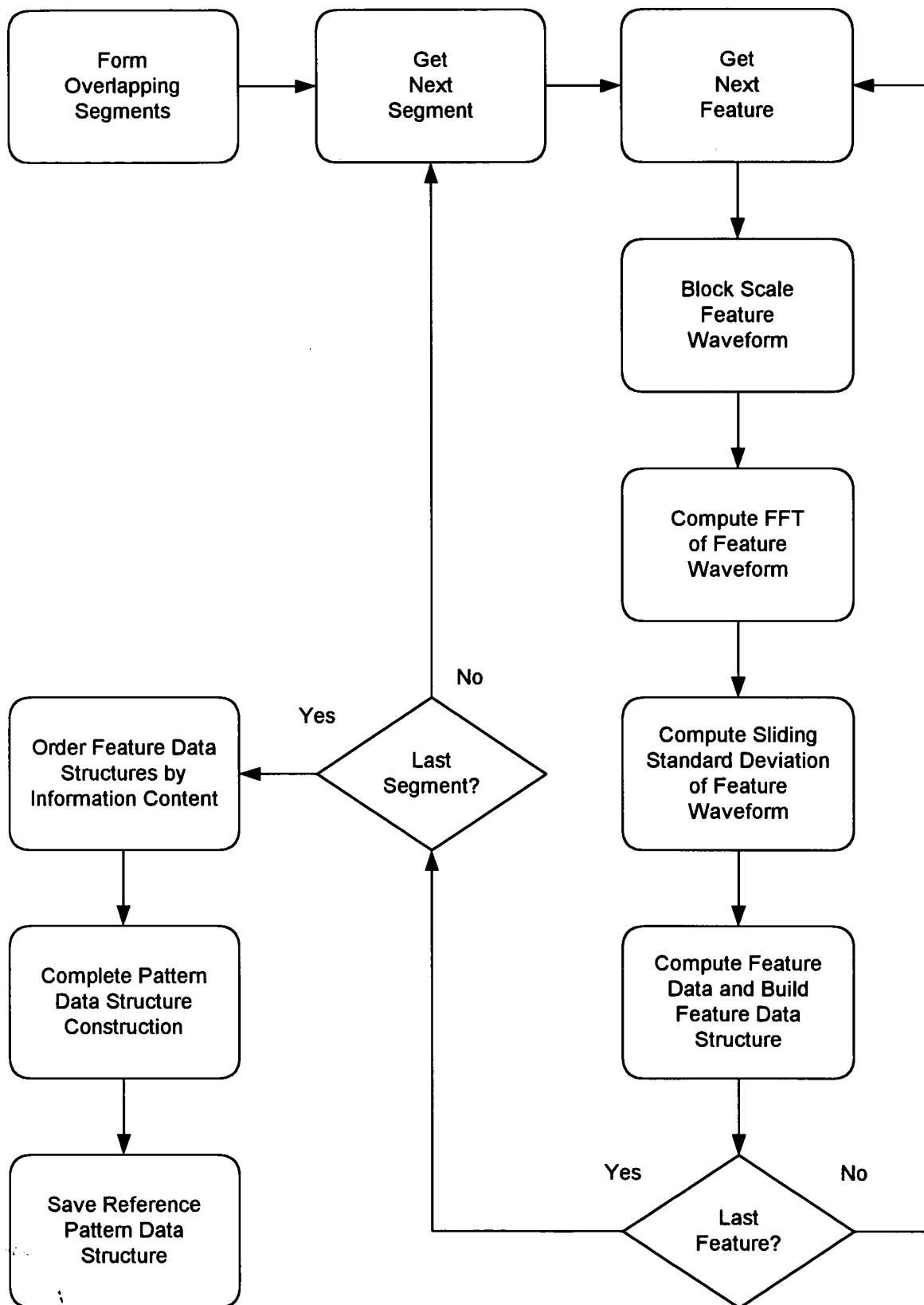


Figure 9: Reference Pattern Initialization

FIG. 10 is a block diagram of a reference pattern database structure.

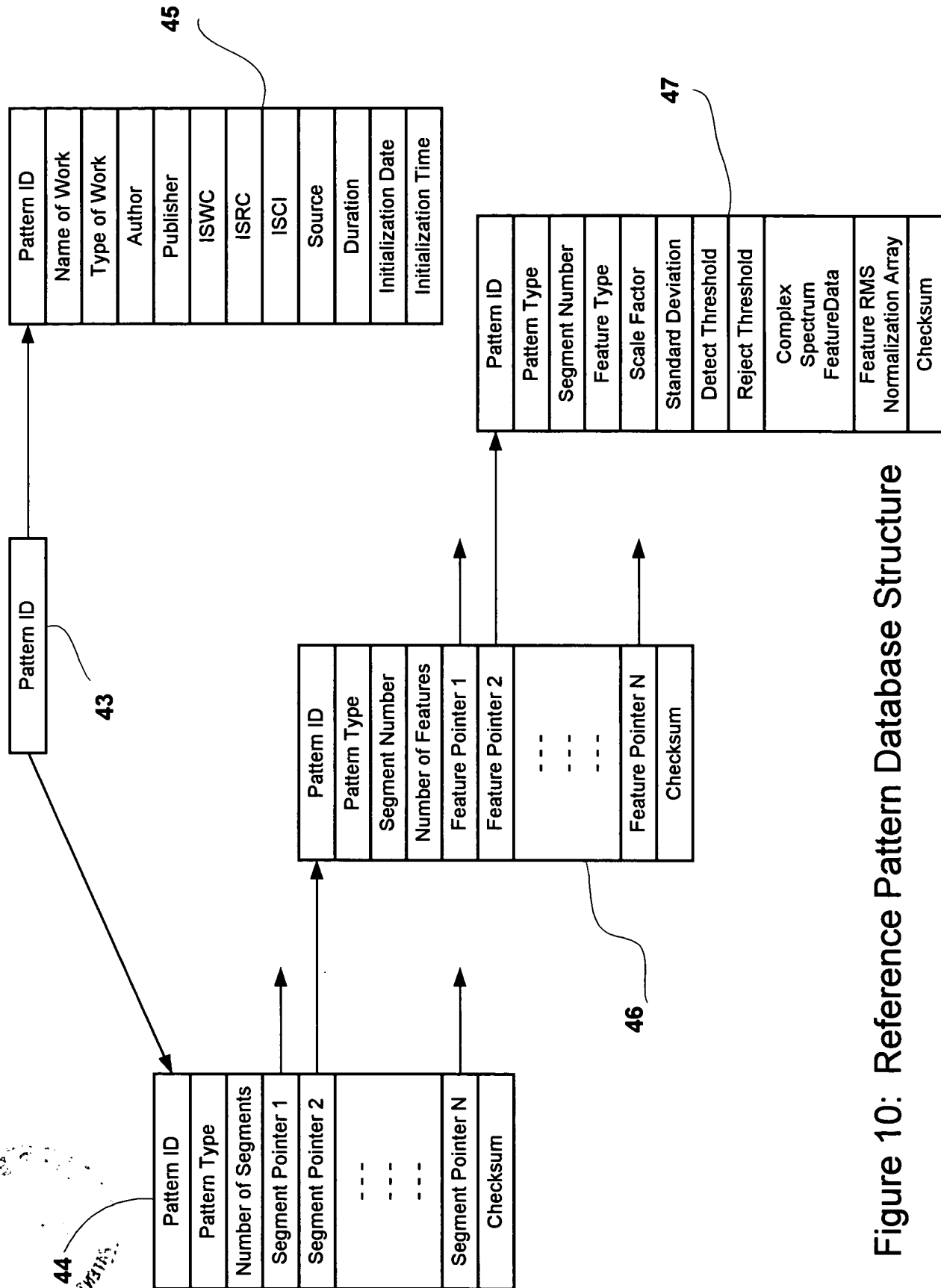


Figure 10: Reference Pattern Database Structure

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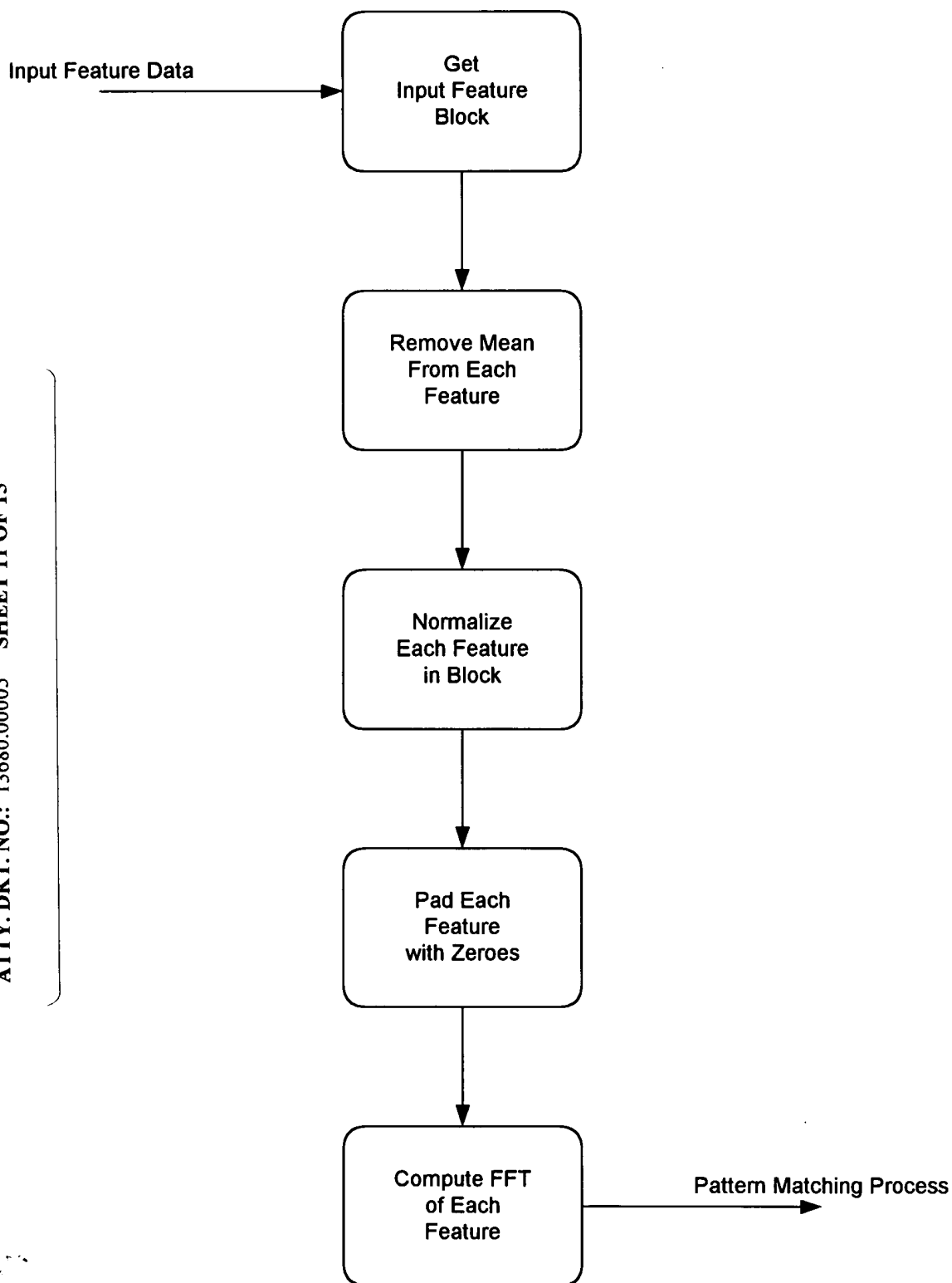


Figure 11: Real-Time Feature Block Pre-Processing

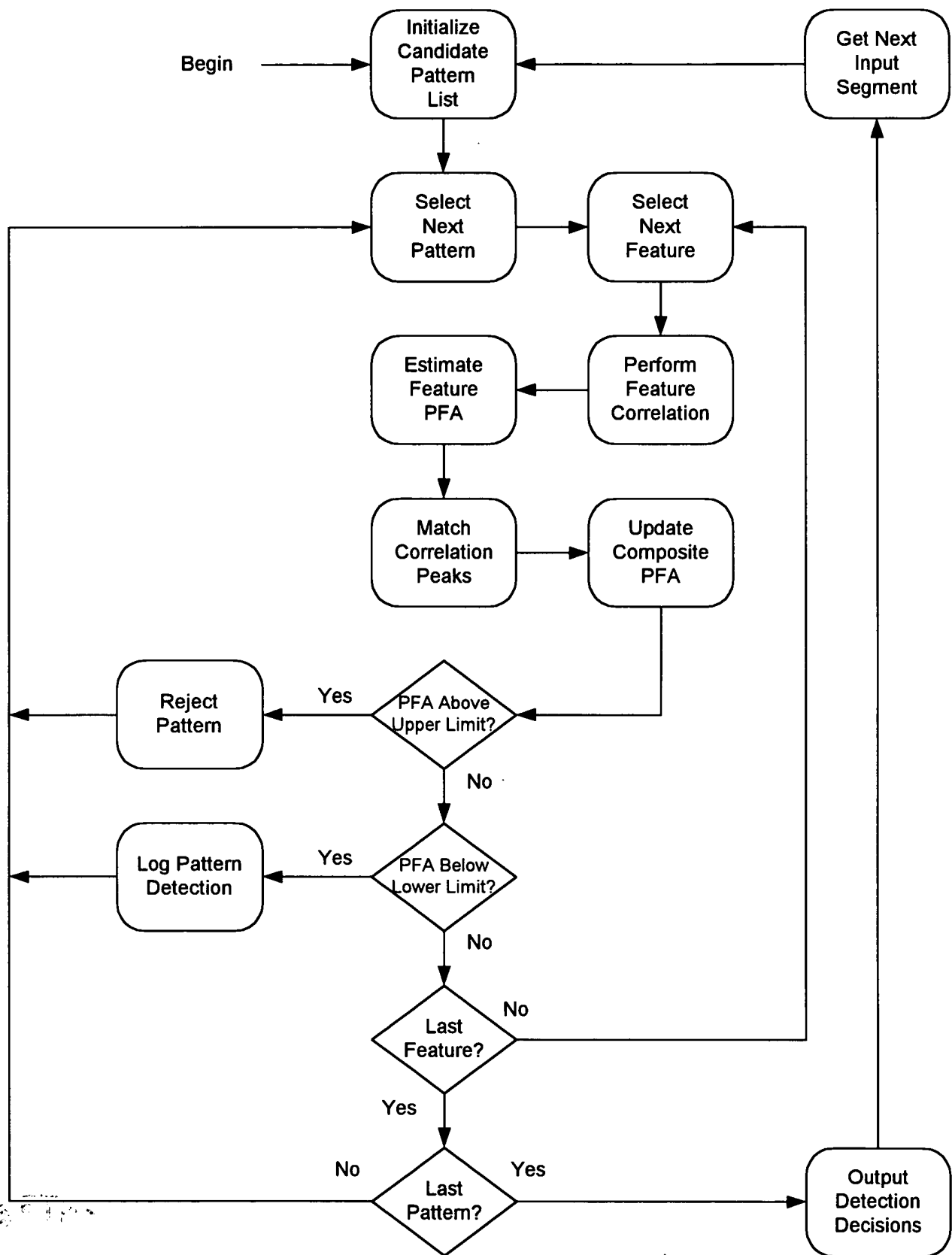


Figure 12: Multiple Feature Correlation Process

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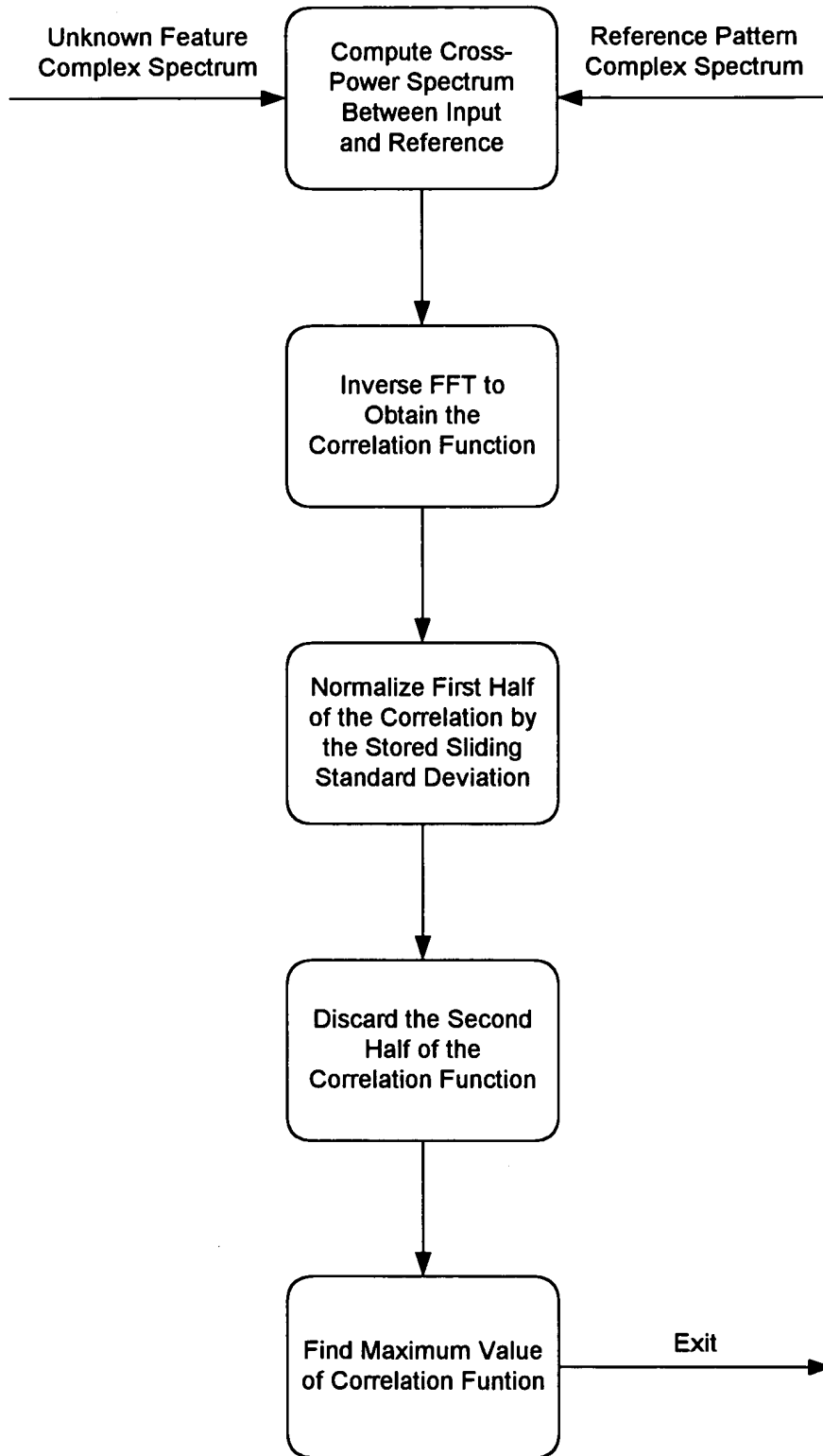


Figure 13: Feature Correlation Process

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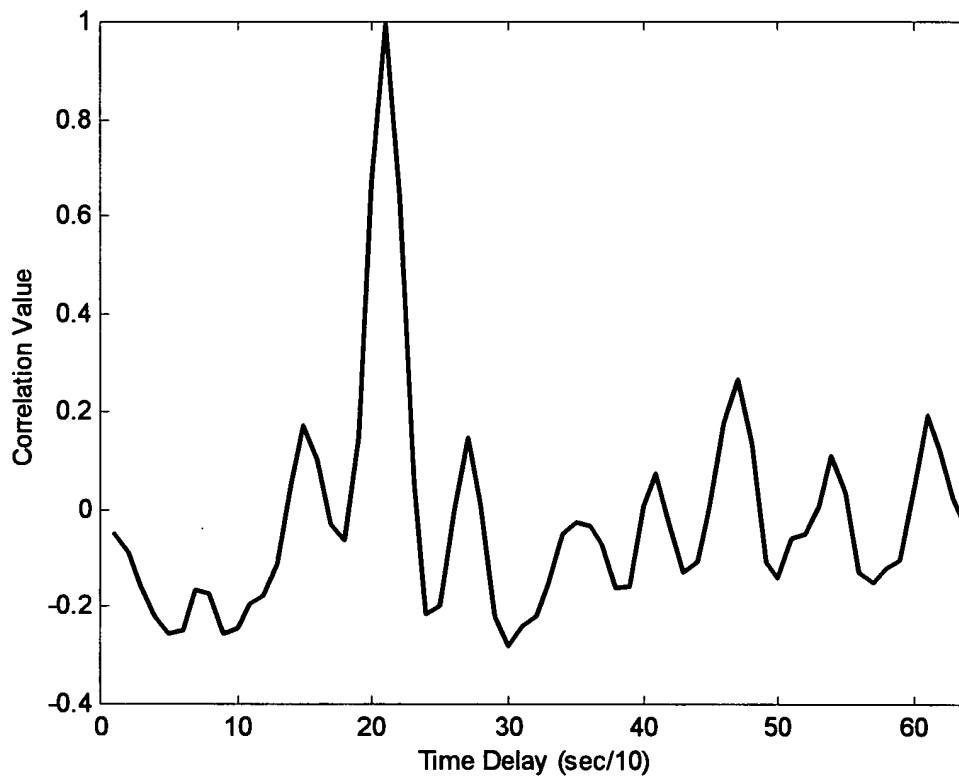
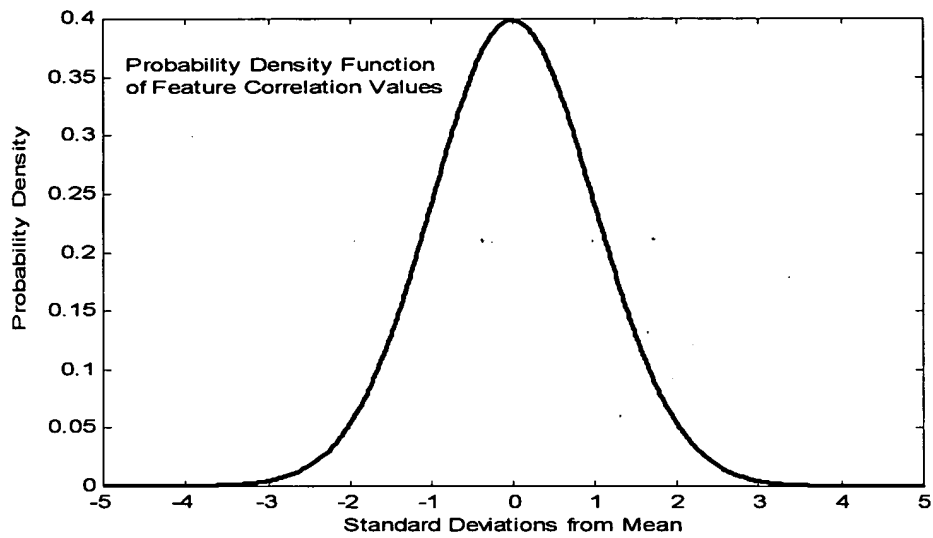
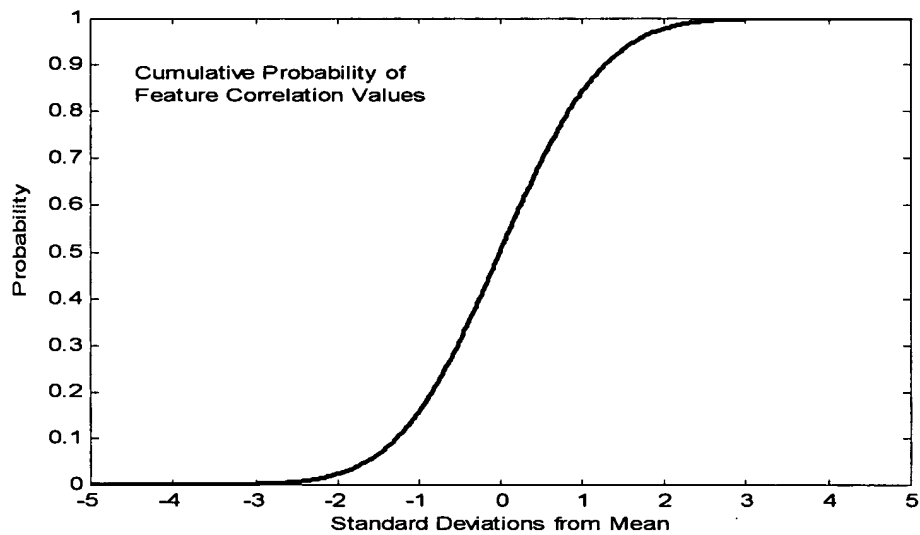


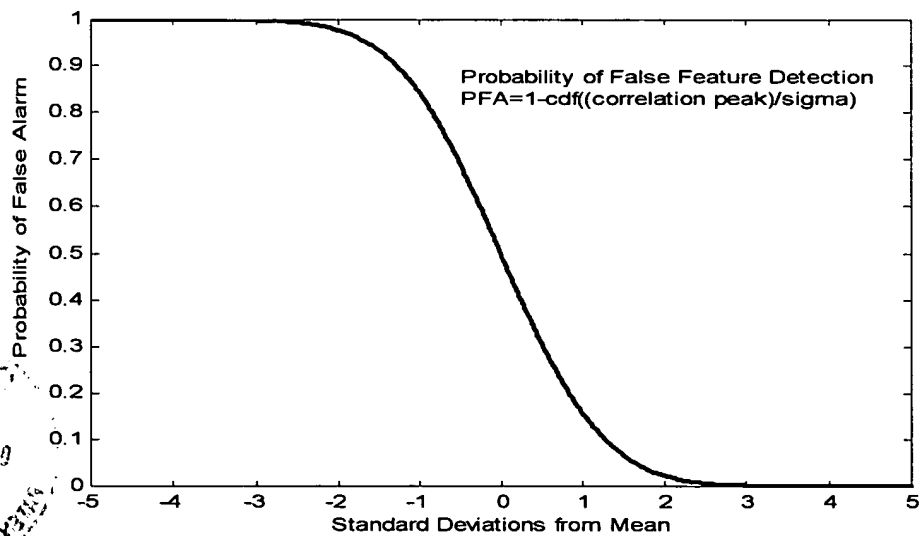
Figure 14: Example Feature Correlation Function



(A)



(B)



(C)

Figure 15: False Detection Estimation from Correlation Values